<u>REMARKS</u>

I.   <u>Introduction</u>

In response to the Office Action dated April 12, 2007, withdrawn claims 74 and 81-122 have been cancelled and claims 1, 37, 39, 75 and 80 have been amended. Claims 1-73 and 75-80 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II.   <u>Specification Amendments</u>

Applicants' attorney has made amendments to the specification as indicated above in order to address the Examiner's comments regarding the abstract and the cross reference to related applications. Applicants' attorney has also fixed the spacing problem with claims 21 and 57.

III.   <u>Claim Amendments</u>

Applicants' attorney has made amendments to the claims as indicated above. These amendments are fully supported by the specification as filed and introduce no new matter.

IV.   <u>Rejections under 35 U.S.C. §112</u>

In paragraphs (1)-(2) of the Office Action, claims 1-73 and 75-80 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to distinctly point out the subject matter which applicant regards as the invention.

The language in these claims that was cited by the Examiner in this rejection has been deleted and replaced with further clarifying language. In addition, the language in claim 37 that was cited by the Examiner in this rejection has been deleted and replaced with further clarifying language. Specifically, the amended claims do not recite a step where each estimate value being sufficiently close to an accurate value of the respective unknown variable. Instead, these claims now recite repeating the steps a plurality of times (an embodiment of the invention that is illustrated for example in Figure 1). For these reasons, Applicants respectfully request a withdrawal of the rejection under 35 U.S.C. §112, second paragraph.

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V.   Rejections under 35 U.S.C. §101

In paragraphs (1)-(2) of the Office Action, claims 1-73 and 75-80 were rejected under 35 U.S.C. §101 as being drawn to non-statutory subject matter.

All pending independent claims have been amended hereinabove to recite the step of providing an output of the result of the recited analytical method for solving linear equations. In providing this output, the claimed method consequently recites the step of providing results of the analysis recited in the claims. As indicated in the specification, systems of linear equations occur frequently in many branches of science and engineering (see, e.g. page 1 lines 14 and 15). The specification provides a number of applications of the described algorithm in various branches of science and engineering (see e.g., the description beginning at 59 line 16). As is known in the art, an output from an analysis of a set of linear equations provides a concrete, useful and tangible result, i.e. the result identified by the Patent Office as being required to satisfy the requirements of 35 U.S.C. §101.

Because the claims have been amended to clearly recite the concrete, useful and tangible result identified by the Patent Office as being required to satisfy the requirements of 35 U.S.C. §101, Applicants respectfully request a withdrawal of this rejection.

As noted above, Applicants' attorney has amended the claims as indicated above to overcome these rejections. However, should issues still remain in this regard, Applicants' attorney requests that the Examiner indicate how the rejection can be overcome, in accordance with the directives of the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (Interim Guidelines) II. Specifically, should it be necessary, the Applicants' attorney requests that the Examiner identify features of the invention that would render the claimed subject matter statutory if recited in the claim. See Interim Guidelines IV.B.

VI.   Prior Art Rejections

On pages (5)-(10) of the Office Action, claims 1-11, 27-32, 34-47, 63-67, 69-73 and 75-80 were rejected under 35 U.S.C. §102 as being anticipated by Yu et al., "New Recursive Algorithm for Solving Linear Algebraic Equations" (Yu).

Applicants respectfully traverse this rejection. Because all independent claims recite a novel constellation of elements for solving equations, one that includes the step of: for each estimate

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value, it is determined whether a predetermined condition is satisfied, and the estimate is updated <u>if and only if</u> the respective predetermined condition is satisfied (see, e.g. "determining whether a predetermined condition is satisfied" as recited in amended claim 1). As discussed in detail below, **conditional steps** for the processing of estimate values such as those recited in the pending claims are neither taught nor suggested by Yu.

A detailed analysis of Yu shows that this disclosure teaches a method for solving a system of N equations in N unknown variables by redefining the system of equations in terms of a row of orthogonal matrix, such that the system of equations may be iteratively solved by **unconditionally** updating a solution vector according to the values of each row of the row orthogonal matrix. In particular, as described in the right hand column of page 2070 of Yu, step 2 of the Yu algorithm comprises three substeps (2.1, 2.2 and 2.3). At step 2.1, an unconditional update of a row of the row orthogonal matrix using an update matrix is carried out. At step 2.2, an unconditional update of the solution vector is carried out. At step 2.3, an unconditional update of the update matrix is carried out.

While the Examiner asserts that equations (8) to (11) of Yu provide such a determination (top paragraph on page 6 of the Office Action), Applicants respectfully note that one of skill in the art would not agree with this assertion because in this Yu disclosure, these equations do not represent any <u>conditional</u> updating of estimates. Illustrating this, the Yu disclosure does not teach or suggest "updating the estimate if and only if the respective predetermined condition is satisfied" (as also recited in claim 1). While the Examiner asserts that the step 2 of the recursive algorithm taught at page 2070 of Yu teaches this element of Applicants' claims (in the top paragraph on page 6 of the Office Action), Applicants similarly note that one of skill in the art would not agree with this assertion because all of the update steps taught by the Yu disclosure are <u>unconditional</u>. For these reasons, the Yu disclosure cannot anticipate the invention recited in the independent claims, i.e. because claim 1 because it does not teach or suggest the use of conditional steps (e.g. "determining whether a respective predetermined condition is satisfied" as recited independent claim 1).

A claim is anticipated only when a single prior art reference discloses each and every limitation in the claim (see e.g. M.P.E.P. 2131). Because Yu fails to teach or suggest a recursive algorithm for solving a system of N equations in N unknown variables <u>that uses conditional steps to solve these equations</u>, this disclosure cannot anticipate the invention recited in claim 1 (as well as

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claims 2-38 which depend from claim 1). Similarly, because independent claims 39, 75 and 80 also recite this conditional updating, the disclosure in Yu cannot anticipate the invention recited in these claims (as well as claims 40-73 which depend from claim 39 and claims 76-79 which depend from claim 75). For these reasons, Applicants respectfully request a withdrawal of the rejection under 35 U.S.C. §102 as being anticipated by Yu. Applicants further note that because Yu fails to teach or suggest a system for solving equations that uses conditional steps to solve these equations, this disclosure cannot render the claimed invention obvious (see, e.g. MPEP §2142 and 2143.03 which note that all the claim limitations must be taught or suggested by the prior art for a finding of obviousness).

Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Yu. In addition, Applicants' invention solves problems not recognized by Yu. Thus, Applicants submit that independent claims 1, 26, 37, 39, 72, 75 and 80 are allowable over Yu. Further, dependent claims 2-25, 27-36, 38, 40-71, 73 and 76-79 are submitted to be allowable over Yu in the same manner, because they are dependent on independent claims 1, 26, 37, 39, 72, 75 and 80, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-25, 27-36, 38, 40-71, 73 and 76-79 recite additional novel elements not shown by Yu.

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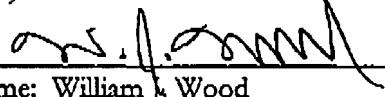G&C 184.2-US-I1

VII.   Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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